

Fishery Ecosystem Plans

An NGO Perspective



What do NGOs want out of FEPs?

A forum and tools for Councils to determine and achieve Optimum Yield by:

- Identifying the ecological, social and economic factors to consider for reduction from MSY.
- Assessing tradeoffs between those factors.
- Making explicit how the Council evaluates and chooses among tradeoffs when setting catch levels.

But this really only addresses the question of "How much?"

What *else* do NGOs want out of FEPs?

A stakeholder-driven plan for how Councils will use discretionary authority under MSA section 303(b):

- Habitat protections
- Spatial and/or temporal factors
- Size/age considerations
- Bycatch reduction
- Management measures "to conserve target and non-target species and habitats, considering the variety of ecological factors affecting fishery populations"

OY Emphasis Grounded in MSA

PURPOSES—...to **provide for** the preparation and implementation, in accordance with national standards, of **fishery management plans which will achieve and maintain**, on a continuing basis, the **optimum yield from each fishery**.

The term "optimum", with respect to the yield from a fishery, means the **amount of fish which...will provide the greatest overall benefit to the Nation**, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems...**is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor**.

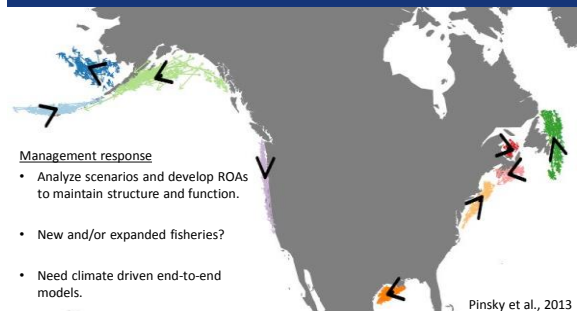
REQUIRED PROVISIONS—**Any fishery management plan...shall... assess and specify** the present and probable future condition of, and the maximum sustainable yield and **optimum yield from the fishery**, and include a summary of the information utilized in making such specification.

Components of FEPs

- Goals & Objectives
- Ecosystem description and management context
- Monitoring and Reporting (Ecosystem Indicators)
- EBFM Priorities and Policies
- Nexus to Management Action
- Management Strategy Evaluation Feedback Loop

Climate Change

Impacts: OA; distribution shifts; changes in productivity (+ or -), species composition, forage base quality/quantity, fleet behavior, habitat, diversity, etc.



Indirect & Cumulative Impacts

- Analyze potential management impacts within context of cumulative human effects
- ID buffers against uncertainty
- Conduct tradeoff analyses
- Use ecosystem models for programmatic EIS

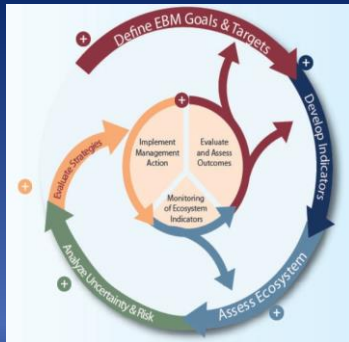


Can FEPs actually “do” anything?

FEPs likely to be advisory, but can help identify, develop and implement measures - through existing FMPs – that help achieve a Council’s ecosystem goals and objectives.

- **Ecosystem status reporting:** provides a context for setting catch levels and can forecast potential concerns
- **Ecosystem initiatives:** can lead to management measures to address a specified need
- **BRPs/thresholds tied to ecosystem indicators:** triggers consideration of alternate management responses

FEP as a Process: The Loop



Process must be linked to the Council’s explicit ecosystem goals and objectives, based on a robust public scoping process, inclusive of all stakeholder perspectives and grounded in the best available science.

FEP as a Social Contract

- A mechanism for public accountability
- Long-term planning that considers all facets of the ecosystem helps stakeholders know what to expect and plan accordingly
- Provides transparency for Council’s plan to evaluate and achieve optimum yield, protect the broader ecosystem, and maintain sustainable fisheries.

Conclusion

EBM requires that we directly confront tradeoffs among competing objectives within and among ocean use sectors – this will require deft negotiation. Tradeoffs do not, however, go away if they are ignored. – Osgood 2012

Some Benefits of Adopting EBFM

- Potential simplification of management in moving from a large number of stock-based management plans to fewer integrated plans for ecologically defined areas
- More effective coordination of management actions for fisheries, protected resource species, biodiversity conservation, and habitat protection
- Direct accounting for fishery interactions (e.g., bycatch) and biological considerations (e.g., predation, biodiversity, habitat requirements, protected resources) along with climate change and environmental variability within a single framework
- Consideration of biological constraints on simultaneous efforts to rebuild stocks to long-term target levels and evaluation of compatibility with stock-specific recovery plans
- Increased stewardship from broader participation of stakeholders, wider sharing of ecological and fisheries knowledge, and greater opportunities for developing place-based governance approaches and co-management
- Potential for greater stability and predictability by focusing on higher-level ecosystem processes, resulting in more predictable planning horizons for the fishing industry

NEFSC EBFM brochure, 2010



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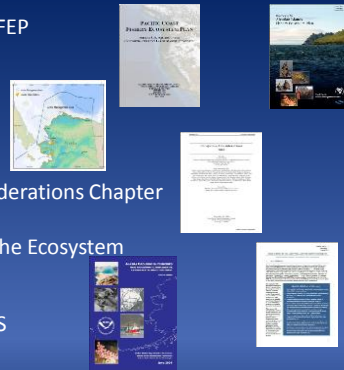
Where is this coming from?

- Ecosystem Principles Advisory Panel
- NEPA – Cumulative Impact Analysis, EIS.
- Forage/Food Web/Multi-species considerations
- New Council Member EBFM training
- NOAA - Integrated Ecosystem Assessment
- 2011 National SSC Workshop
- Brush fires: habitat, bycatch, climate change, OA

Ecosystem-based fishery management recognizes the physical, biological, economic and social interactions among the affected components of the ecosystem and attempts to manage fisheries to achieve a stipulated spectrum of societal goals, some of which may be in competition. – Osgood 2012

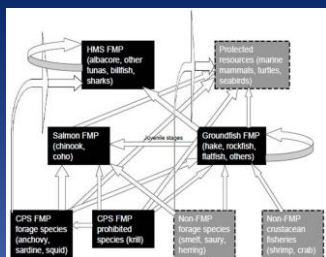
Examples of EBFM Documents

- Aleutian Islands FEP
- Pacific Coast FEP
- Arctic FMP
- Ecosystem Considerations Chapter
- Annual State of the Ecosystem Report
- Programmatic EIS



Optimum Yield

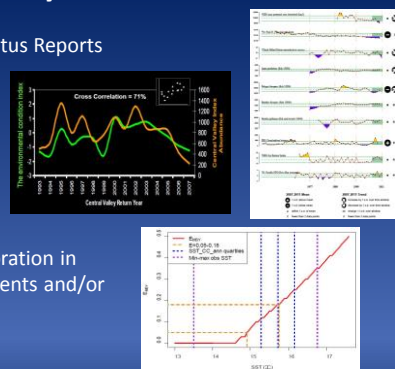
- Treated differently by various Councils & FMPs
- Often fishery or species-specific
- What's the baseline?
- Required vs. Discretionary



FEPs should explain & justify how a Council evaluates OY for each FMP and for the broader ecosystem.

Ecosystem Indicators

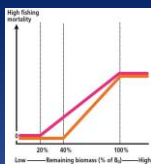
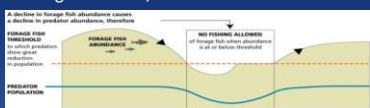
- Ecosystem Status Reports
- Forecasting
- Direct incorporation in stock assessments and/or control rules



Food Web & Forage

- Hockey Stick Control Rules

- Forage reserves / Set asides



- Management informed by predator dynamics

Results from PREP Equation (Predator Response to Exploitation of Prey):

$$R = \rho D^Z \left(1 - \frac{B}{B_0} \right)^Y$$

R = Predator Decline (as %); Z = Diet Dependency (as a fraction of the total diet); B = Forage Fish Biomass

- Lower-trophic level (forage) fisheries management with an assemblage/guild approach, informed by forage indicators and predator dependency

Habitat & Area-Based Protections

- Strict adherence to EFH regulations only?
- Deep sea coral and sponge authority in MSA
- Marine protected areas?
- Representative habitat?
- Bird rookeries? Mammal haul-outs? Hotspots?



Bycatch

Councils should develop a core set of values and priorities for bycatch minimization and a regional perspective on how NS9 should be interpreted and addressed, within the context of how best to achieve OY and maximum benefit to the nation.

MMPA, ESA, and MBTA: If ITS is issued, and mortality is below PBR, is it OK for Councils not to act?

Tradeoffs and allocation issues: Resource use prioritization, OY factors to determine bycatch minimization measures, net loss fisheries?

Monitoring and Accountability: Encourage EM where effective, ID appropriate levels for rare events, develop methodologies for species identification

When and where science and economic reasons do not compel action, the bycatch issue becomes a **values discussion**.